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Editorial

The present issue of *CIT's* Vol.25 brings five papers dealing mostly with applications of computing and information technology. The papers address topics in stability analysis for interconnected systems, use of Semantic Web technologies to support data interoperability, query processing for XML documents on the Web and application of machine learning in medicine.

The first paper in this issue, *Decentralized H∞ Control of Interconnected Systems with Time-Varying Delays* by Amal Zouhri and Ismail Boumhidi, focuses on the problem of delay dependent stability/stabilization of interconnected systems with time-varying delays, an issue usually met in practical systems like engineering physics, neural networks, communications networks and telecommunications. The authors' approach, which is based on a new Lyapunov-Krasovskii functional, basically consists of two steps. Firstly a decentralized delay-dependent stability analysis is performed which assumes that every local subsystem of the linear interconnected delay system is asymptotically stable. Then a decentralized state-feedback stabilization scheme is designed, for which the family of closed-loop feedback subsystems shows delay-dependent asymptotic stability for each subsystem. This approach has been assessed on a representative example and compared with some other recent ones.

Weiguo Ma, Xia Xu and Hairong Zhu tackle issues in control systems caused by lost packets in both feedback and forward channels in the paper *Networked Non-fragile H∞ Control for Lipschitz Nonlinear System with Quantization and Packet Dropout in Both Feedback and Forward Channels*. They model the transmission in both channels (sensor to controller, and controller to actuator) as Markov chains, and design the controller basing on the H∞ control theory so as to behave satisfactorily in the presence of packet dropout. They prove the effectiveness and superiority of the proposed method both mathematically, and by simulation through a numerical example.

In their paper *LinkED: A Novel Methodology for Publishing Linked Enterprise Data*, Shreyas Suresh Rao and Ashalatha Nayak address the important task of Linked Open Data (LOD) publication in enterprise contexts. While current LOD technologies focus on expert search, creation of unified information space, and augmentation of core data from an enterprise, they suffer from a lack of uniform representation across domains, which severely limits their widespread adoption. The authors propose a novel, cross-domain methodology called LinkED, which streamlines the publishing process and addresses the key challenges pertaining to data consistency and replicability. The authors demonstrate the soundness of their approach in a case study where they apply LinkED to data from the education domain.

The paper *New Path Based Index Structure for Processing CAS Queries Over XML Database* by Dhanalekshmi Gopinathan, Krishna Asawa deals with query processing of nested data, which are characteristic for retrieval of information on the Web, that typically consists of XML documents. As opposed to existing approaches, mostly focusing on the structure alone, the authors propose to combine siblings of terminal nodes into one path hence efficiently processing twig queries with a smaller number of lookups and joins. In fact, their approach builds on the construction of an index consisting of two indices, namely path and path combined index, in such a way efficiently answering both XML path queries and twig queries with or without value predicates with less expensive joins, and in single lookups.

Padmapriya Nammalwar, Venkateswaran Narasimhan, Toshitha Kannan and SindhuMadhuri Morapakala explore ocular infrared thermography that can be used for non-invasive detection of

glaucoma. In their paper titled *Non-invasive Glaucoma Screening Using Ocular Thermal Image Classification*, they propose a machine learning method which is based on a combination of approaches: extraction of region of interest (ROI) area attribute based on Euclidean distance; selection of four features from Gray Level Co-occurrence Matrix (GLCM) using correlation based feature selection; and mean value of temperature mapping histogram. Five support vector machines (SVM) classifiers, one for each combination of two attributes that include ROI, were trained on a set of 100 images (50 with glaucoma, 50 without) and tested on a set of 16 images. The authors report a 96% accuracy for sensitivity, specificity and accuracy using ROI and GLCM homogeneity features and linear kernel SVM. The results indicate potential use of the method for early screening of glaucoma.

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